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REMARKS

Claims 1-6 and 8-21 are pending in the present Application. No claims have been amended or added, leaving Claims 1-6 and 8-21 for consideration upon entry of the present Response. Reconsideration and allowance of the claims are respectfully requested in view of the following remarks.

Claim Rejections Under 35 U.S.C. § 102(b)

Claims 1-6, 8-12, and 15-21 stand rejected under 35 U.S.C. § 102(b), as allegedly anticipated by U.S. Patent No. 5,877,254 to La Casse et al. (hereinafter "La Casse") (Office Action dated October 20, 2006, page 2) Applicants respectfully traverse this rejection.

The present invention is directed to and claims a method for making a fog resistant thermoplastic article, comprising exposing an aromatic thermoplastic polymer article to an aqueous environment sufficient to result in a fog resistant aromatic thermoplastic polymer article, wherein the fog resistant aromatic thermoplastic polymer article has a greater fog resistance when compared to the aromatic thermoplastic polymer article prior to exposing; and wherein the aromatic thermoplastic polymer article comprises a composition comprising an aromatic thermoplastic polymer and an ionic anti-fog additive. Independent Claims 1, 17 and 21 each require exposing a thermoplastic polymer article to an aqueous environment sufficient to result in a fog resistant aromatic thermoplastic polymer article.

Paragraph [0011] indicates that "exposing" is an active conditioning step with observable results. In particular, paragraph [0011] states that the surface of the article is exposed to an aqueous environment effective to provide an increase in fog resistance *as compared to an article that has not been conditioned*. One of ordinary skill in the art would understand that an article that is has not been conditioned is one which has not been exposed to an aqueous environment, i.e., an article that has not been conditioned is an article, which has been placed in the air under standard atmospheric conditions.

As noted in the specification at paragraph [0009], and without being bound by theory, Applicants believe that conditioning the thermoplastic article by exposing it to an aqueous environment brings the hydrophilic portion of the anti-fog additive to the surface of the article

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in response, thereby switching the additive orientation so the anti-fog (hydrophilic) portion of the additive is at the outermost surface.

Further, the Applicants describe an aqueous environment in paragraphs [0011] through [0012].

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Barient Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987).

La Casse is generally directed to a to scratch-resistant anti-fog coating compositions, methods for making the coating compositions, as well as methods of rendering a surface scratch-resistant and imparting anti-fog properties. The coating composition includes an isocyanate prepolymer, a hydrophilic polyol, and a hydroxyl bearing surfactant. (Col. 3, ll. 65 – Col. 4, ll. 3) According to the La Casse, the hydrophilic polyols and the hydroxyl-bearing surfactants react with free isocyanate groups in the isocyanate prepolymer to form a polyurethane backbone having the hydrophilic group of the polyol and the surfactant chemically reacted therein. (Col. 4, ll. 4-7) Accordingly, La Casse teaches a polyurethane structure having the desired hydrophilicity and surfactant properties built into the polyurethane structure. (Col. 4, ll. 40-42)

La Casse does not teach exposing a thermoplastic polymer article to an aqueous environment sufficient to result in a fog resistant aromatic thermoplastic polymer article, as required by the present invention. In making the rejection, the Examiner states

[T]he anti-fog composition taught by La Casse et al. contains water (col. 6, lines 8-15) and is applied as a coating or film to the article (col. 7, lines 1-2). Additionally, the article is exposed to atmospheric conditions wherein the atmosphere inherently comprises a certain level of humidity. The broad recitation of exposing the article to an aqueous environment includes exposing the article to the atmosphere.

(Office Action dated October 20, 2006, page 3) As noted above, the present invention requires exposing a thermoplastic polymer article to an aqueous environment. While Applicants agree with the Examiner assertion that the coating composition contains water, Applicants respectfully assert that a composition containing water prior to heat curing is not the same as exposing a thermoplastic polymer article to an aqueous environment. The passage cited by the Examiner (Col. 6, ll. 8-15) refers to a solution used to prepare the

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solvents which are then used to prepare solutions of hydrophilic polyol and the hydroxyl-bearing surfactant. The solvent hydrophilic polyol and the hydroxyl-bearing surfactant solutions are mixed with the isocyanate prepolymer, applied to an article, and cured (Col. 7, ll. 1-2). Thus, the cured coating provides the anti-fog properties. La Casse does not teach exposing the cured coating to an aqueous environment sufficient to result in a fog resistant aromatic thermoplastic polymer article, wherein the fog resistant aromatic thermoplastic polymer article has a greater fog resistance when compared to the aromatic thermoplastic polymer article prior to exposing. Therefore, La Casse does not teach the conditioning step of exposing a thermoplastic polymer article to an aqueous environment.

Further, Applicants respectfully disagree with the Examiner's contention that exposing the coating composition to "atmospheric conditions" is equivalent to exposing a thermoplastic polymer article to an aqueous environment. As noted above, Claims 1, 17 and 21 require the *active conditioning step* of exposing a thermoplastic polymer article to an aqueous environment sufficient to result in a fog resistant aromatic thermoplastic polymer article. One of ordinary skill in the art would understand "an aqueous environment" as a water based environment having a water content greater than that of general atmospheric conditions. Accordingly, Applicants believe that La Casse does not teach exposing a thermoplastic polymer article to an aqueous environment.

In addition, with regard to the Examiner's rejection of claims 5, 6, 17, 20, and 21, Applicants submit that La Casse does not teach the particular *combination* of aromatic thermoplastic and anti-fog additive as required by the claims. In making the rejection, the Examiner pointed to Col. 3, ll. 30-60 as teaching an anti-fog thermoplastic article comprising polyethylene terephthalate (Claims 5 and 21) and polycarbonate (Claims 6 and 17). Applicants respectfully disagree with the Examiner's conclusion.

As noted above, La Casse is generally directed to a to scratch-resistant anti-fog *polyurethane coating compositions*. (Col. 2, ll. 66 – Col. 3, ll. 4) According to the Patentee, the polyurethane coating compositions can be applied to various *substrate* materials including "polycarbonate, acrylic polyvinylchloride, polybisallyl carbonate, polyethylene terephthalate and polyethylene naphthenate transparent plastics. Various polyolefins, fluorinated polymers,

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metals and glass may also be used with appropriate pretreatments.” (Col. 3, ll. 49-58) Thus, Col. 3, ll. 30-60 of La Casse does not disclose an anti-fog thermoplastic article comprising a composition comprising the particular aromatic thermoplastic polymer and an ionic anti-fog additive of the claims. Rather Col. 3, ll. 30-60 of La Casse discloses various *substrate* materials on which the anti-fog polyurethane coating compositions can be applied to as a coating. The claims 5-6, 17, and 20-21 require the anti-fog additive to be present in the aromatic thermoplastic, *not* as a separate layer. Since La Casse does not teach the particular claimed composition of aromatic thermoplastic containing the anti-fog additive, it does not teach all of the elements of 5-6, 17, and 20-21. For these reasons at least, La Casse does not teach all elements of the claimed invention and therefore cannot anticipate the present invention. Applicants respectfully request a withdrawal of the § 102(b) rejection over La Casse and allowance of the claims.

Claims 11-14 and 21 stand rejected under 35 U.S.C. § 102(b), as allegedly anticipated by U.S. Patent No. 3,933,407 to Tu et al. (hereinafter “Tu”). (Office Action dated October 20, 2006, page 6) Applicants respectfully traverse this rejection.

Independent Claim 21 is directed to a method for making a fog resistant thermoplastic article, comprising exposing an aromatic thermoplastic polymer article to an aqueous environment sufficient to result in a fog resistant aromatic thermoplastic polymer article, wherein the fog resistant aromatic thermoplastic polymer article has a greater fog resistance when compared to the aromatic thermoplastic polymer article prior to exposing; and wherein the aromatic thermoplastic polymer article comprises a composition comprising an aromatic thermoplastic polymer and an ionic or non-ionic anti-fog additive, wherein the aromatic thermoplastic polymer comprises polyphenylene ether, aromatic polyester, polyphenylene ether/styrene blend, aromatic polyamide, polyethylene terephthalate, blends thereof, or a combination comprising at least one of the foregoing polymers. Claims 11-14 depend from Claim 21.

Tu discloses an anti-fog composition comprising the combination of (1) hydrophilic acrylate or methacrylate polymer, e.g., hydroxyethyl methacrylate polymer and (2) a

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siloxane-oxyalkylene block copolymer. (Col. 1, ll. 9-12) Tu discloses applying the anti-fogging composition to glass or plastic surfaces which are normally fogging. (Abstract) Tu does not disclose an aromatic thermoplastic polymer article which comprises *a composition comprising an aromatic thermoplastic polymer and an ionic or non-ionic anti-fog additive*. Tu, as indicated at Col. 10, ll. 39-67, Col. 11, ll. 1-67 and Tables I, II, and III discloses adding organosiloxane-oxyalkylene block copolymer to hydroxyalkyl acrylate or methacrylate polymer to form a solution and then coating a plastic surface with the solution. Thus, the plastic articles disclosed by Tu do not comprise an ionic or non-ionic anti-fog additive. Rather, the *coating* solution contains organosiloxane-oxyalkylene block copolymer. Furthermore, the coating solution of Tu does not contain an aromatic thermoplastic polymer. For these reasons at least, Tu does not teach all elements of the claimed invention and therefore cannot anticipate the present invention. Applicants respectfully request a withdrawal of the § 102(b) rejection over Tu and allowance of the claims.

Claims 16, 19, and 21 stand rejected under 35 U.S.C. § 102(b), as allegedly anticipated by U.S. Patent No. 5,910,540 to Takahashi et al. (hereinafter "Takahashi") as evidenced by U.S. Patent No. 6,677,014 to Edlein et al. and U.S. Patent No. 5,487,920 to Lopata et al. (Office Action dated October 20, 2006, pages 7-8) Applicants respectfully traverse this rejection.

As noted above, independent claim 21 requires the conditioning step of exposing comprising exposing an aromatic thermoplastic polymer article to an aqueous environment sufficient to result in a fog resistant aromatic thermoplastic polymer article.

Takahashi is directed to a thermoplastic elastomer composition comprising a styrene type block copolymer or a hydrogenated product thereof, and one or more thermoplastic elastomers. (Col. 2, ll. 15-39) Takahashi is further directed to a composite molded product of a three layer structure comprising nonolefin type resin layer/thermoplastic elastomer composition layer/crystalline olefin type resin layer, and a process for producing this molded product. (Col. 2, ll. 19-23) Takahashi does not teach an exposing step comprising exposing an aromatic thermoplastic polymer article to an aqueous environment sufficient to result in a fog resistant aromatic thermoplastic polymer article.

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As noted above, independent claim 21 requires the conditioning step of exposing an aromatic thermoplastic polymer article to an aqueous environment sufficient to result in a fog resistant aromatic thermoplastic polymer article. In making the rejection, the Examiner alleges that Takahashi discloses this limitation by stating "[I]t is noted that the materials employed contain residual levels of water and that exposure to air is an exposure to an aqueous environment." (Office Action dated October 20, 2006, page 8) Applicants respectfully disagree with the Examiner's contention that exposing the thermoplastic elastomer composition to "air" is equivalent to exposing a thermoplastic polymer article to an aqueous environment. As noted above, exposing an aromatic thermoplastic polymer article to an aqueous environment sufficient to result in a fog resistant aromatic thermoplastic polymer article is an active conditioning step with observable results. In particular, paragraph [0011] states that the surface of the article is exposed to an aqueous environment effective to provide an increase in fog resistance *as compared to an article that has not been conditioned*. Applicants describe an aqueous environment in paragraphs [0011] through [0012]. As noted above, one of ordinary skill in the art would understand "an aqueous environment" as a water based environment having a water content greater than that of air. Further, Applicants submit that one of ordinary skill in the art would consider an article placed in the "air" as an article that has not been conditioned. For this reason at least, Takahashi does not teach all elements of the claimed invention and therefore cannot anticipate the present invention. Applicants respectfully request a withdrawal of the § 102(b) rejection over Takahashi and allowance of the claims.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 16, 19, and 21 stand rejected under 35 U.S.C. § 103(a), as allegedly obvious over Takahashi in view of Edlein and Lopata. Applicants respectfully traverse this rejection.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that

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would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

As noted above, Takahashi does not teach independent claim 21's required exposing step. This active step requires exposing an aromatic thermoplastic polymer article to an aqueous environment sufficient to result in a fog resistant aromatic thermoplastic polymer article. The combination of Edlein and Lopata do not make up for this deficiency.

In making the rejection, the Examiner states:

Regarding claim 21, Takahashi teaches the method of claim 21 as discussed in the 102(b) rejection above. ... Takahashi does not explicitly disclose the impact of the aqueous environment on the article.

However, Edlein et al. disclose that antifog agents employed during the processing of plastics migrate to the surface of the film once the article is formed and raise the surface tension of the film and that as a result, formation of a fog is prevented and that both dispersing and coating with anti-fog agents is conventional in the art (col. 1, lines 30-45) and Lopata et al. demonstrate that washing the article produced with an anti-fog coating of their invention in an aqueous environment enhances the anti-fog characteristics of the article (col. 9, lines 48-55; Table 6).

(Office Action dated October 20, 2006, page 10)

Edlein is directed to anti-fog films, which incorporates one or more organic acid esters of cellulose which are useful for the production of printed anti-fog films. (Abstract) Edlein also discloses an ink system that includes one or more organic acid esters of cellulose. As noted by the Examiner, Edlein also teaches the general principle that some anti-fog agents tend to migrate to the surface of a film and raise the surface of the film. (Col. 1, ll. 30-40) Edlein does not teach or suggest exposing an aromatic thermoplastic polymer to an aqueous environment in order to provide greater fog resistance when compared to the aromatic thermoplastic polymer prior to exposing. Nor does Edlein teach or suggest that the exposing an aromatic thermoplastic polymer to an aqueous environment would potentially result in a fog resistant article having greater fog resistance when compared to the aromatic

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thermoplastic article prior to exposing it to an aqueous environment.

Lopata is generally directed to a process for the plasma enhanced vapor deposition of a silicon-containing compound having one to three Si atoms onto a surface of glass, mirror, microchip or polymer substrates in flat or complex shape to provide an anti-fog and/or anti-scratch coating. (Abstract) The process comprises the plasma-induced chemical vapor deposition of a thin film or coating layer on the exposed surface of the substrate using a silicon-containing organic compound as the gaseous source and then exposing the thus treated surface to a low temperature, plasma gas composition consisting essentially of a mixture of N_2O and CO_2 , for a time sufficient to modify the composition of said surface so that a durable, washable, long lasting coating results. (Col. 1, ll. 64 – Col. 2, ll. 5) Thus, the process described by Lopata teaches modifying the surface of a glass, mirror, microchip or polymer substrate with plasma enhanced vapor deposition. The anti-fog article described by Lopata is a thin film or coating layer on the exposed surface of the substrate using a silicon-containing organic compound. Therefore, Lopata does not disclose a fog resistant aromatic thermoplastic polymer article, let alone a composition comprising aromatic thermoplastic polymer and an ionic or non-ionic anti-fog additive.

In addition, the passage cited by the Examiner teaches washing a polymeric substance, that has been surface modified, i.e., coated, with silicon containing organic compound (HMDSO) using a Plasma Science PS0500D gas plasma reactor, with an isopropyl alcohol solution enhances the anti-fog characteristics of the article. Lopata does not teach exposing an aromatic thermoplastic polymer article comprising a composition comprising aromatic thermoplastic polymer and an ionic or non-ionic anti-fog additive to an aqueous environment sufficient to result in a fog resistant aromatic thermoplastic polymer article, as required by independent Claim 21. Rather, Lopata teaches washing a plasma deposited coating containing a silicon-containing compound having one to three Si atoms to enhance the anti-fog characteristics of the plasma deposited coating. Lopata does not disclose a polymer having an anti-fog additive, let alone an aromatic thermoplastic polymer comprising an anti-fog additive.

Additionally, there is no motivation for one of ordinary skill in the art to combine the references in the manner made by the Examiner. In particular, one of ordinary skill in the art

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would not have been motivated, based on the references, to expose the composition of Takahashi to an aqueous environment sufficient to result in a fog resistant aromatic thermoplastic polymer article. Takahashi does mention that anti-fogging additives can be added to the thermoplastic elastomer as one additive in a laundry list of additives including antioxidants, thermal stabilizers, light stabilizers, coloring agents, etc. (Col. 10, ll. 10-15) However, Takahashi does not indicate that there is any process for providing a greater fog resistance, only that generally, an anti-fogging agent can be added. Specifically Takahashi does not indicate that by exposing the composition to an aqueous environment would improving the fog resistance of the composition. Takahashi does not even suggest that improved fog resistance is necessary or desired.

With regard to Lopata, the reference does not disclose a coating with an antifog additive, rather it is the *coating itself* deposited by plasma enhanced vapor deposition that provides Lopata's antifog property. There is no suggestion/motivation that the washing step of Lopata would even work for compositions of polymer plus additive. Nor does Edlein suggest that exposing an aromatic thermoplastic polymer containing an anti-fog additive to an aqueous environment would result in a fog resistant article having greater fog resistance when compared to the aromatic thermoplastic article prior to exposing it to an aqueous environment. Thus, one of ordinary skill in the art would not have been motivated to combine the cited references to arrive at a process for making a fog resistant thermoplastic article.

Thus, in summary, since the combination of Takahashi with Edlein and Lopata does not teach all of the claimed elements of independent Claim 16, 19 and 21, and further since there is no motivation to combine the references, Applicants believe that the Examiner has not made a *prima facie* case of obviousness. Applicants respectfully request a withdrawal of the § 103 rejection over Takahashi in view of Edlein and Lopata, and an allowance of the claims.

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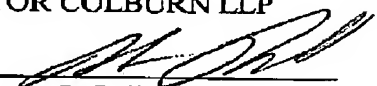
It is believed that the foregoing remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance are requested.

If there are any additional charges with respect to this Response or otherwise, please charge them to Deposit Account No. 07-0893.

Respectfully submitted,

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